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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,771	02/20/2004	Hiroyuki Kinugawa	Q79652	3779

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EXAMINER

RIDDLE, KYLE M

ART UNIT PAPER NUMBER

3748

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/781,771

Applicant(s)

KINUGAWA ET AL.

Examiner

Kyle M. Riddle

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 0204 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02202004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

- Page 21, line 15, "Press-fitted" should read --press-fitted--;
- Page 23, fourth line from bottom, "man-hour" should read --man-hours--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Mikame et al. (U.S. Patent 5,724,929).

Mikame et al. disclose a variable valve timing mechanism comprising:

- a first rotor or sprocket 51 rotating synchronously with a crankshaft of an engine

(column 8, line 48, Figures 9 and 10);

- a second rotor 52 secured to an end of a camshaft 55 providing relative rotation to first rotor or sprocket 51 (column 9, lines 51-52, Figures 9 and 10);

- a rotation regulating member or lock pin 60 located on a vane 522 of rotor 52 to lock rotor 52 relative to sprocket 51 in an initial position (column 8, lines 45-49, Figures 9 and 10);

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- an engaging hole 533 opening to a flat cuttable surface in plate 53 fixed to sprocket 51 to engage with lock pin 60, the inner surface of the plate 53 including engaging hole 533 being surface hardened to include induction hardening (including quenching) (column 9, lines 6-9, lines 34-37, Figures 9 and 10);

- a clearance provided between the rotors (column 8, lines 11-15, Figures 9 and 10).

4. Claims 1, 3, 4, and 6 are further rejected under 35 U.S.C. 102(e) as being anticipated by Miyasaka (U.S. Patent 6,497,208).

Miyasaka discloses a variable valve control apparatus comprising:

- a first rotor or housing member 4 rotating via chain sprocket 3 synchronously with a crankshaft (column 3, lines 59-63, Figures 1 and 3);

- a second rotor 15 secured on an end of camshaft 1 rotating relative to housing member 4 and provided with sealing means to seal the clearance between the rotors (column 4, lines 37-54, column 5, lines 41-45, Figures 1 and 3);

- a rotation regulating member or locking pin 37 for locking the relative rotation of the housing member 4 and rotor 15 at a predetermined position (column 6, lines 50-60, Figure 1);

- an engaging hole or member 44 opening to a flat cuttable surface for receiving locking pin 37, the engaging member 44 surface hardened or quenched (column 6, lines 30-34, Figures 5A-5C).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being obvious over Mikame et al. or Miyasaka.

Mikame et al. and Miyasaka disclose variable valve mechanisms with relatively rotatable rotors, locking pins engaging a locking hole, and the engagement hole being formed by induction hardening or quenching. They, however, fail to disclose an oxide surface treatment.

Mikame et al. and Miyasaka, as described above, cite treating the engagement hole of the locking mechanism to harden the surface to resist wearing and abrasion during long operation. The inclusion of an oxide film forming surface treatment to harden the engagement surface would have been obvious to one having ordinary skill in the art depending on manufacturing and production costs, ease of production, and wear results. Moreover, there is nothing in the record which establishes that the application of such a surface hardening treatment represents a novel or unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

Conclusion

7. The IDS (PTO-1449) filed on 20 February 2004 has been considered. An initialized copy is attached hereto.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of 3 patents.

- Matsuoka et al. (U.S. Patent 6,352,008) disclose a one-piece flywheel with an outer ring gear portion made through induction hardening.

- Miyasaka et al. (U.S. Patent 6,394,052) disclose a variable valve control apparatus with the engaging bore member quenched hardened.

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- Hase (U.S. Patent 6,523,511) discloses a valve timing adjusting apparatus with the locking hole process by quenching.

Communication

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (703) 306-3409. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kyle M. Riddle
Examiner
Art Unit 3748

kmr



THOMAS DENION
SUPERVISORY PATENT EXAMINER
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